M3A.1: Cover Slide

Module 3A
Information Needs and Sharing
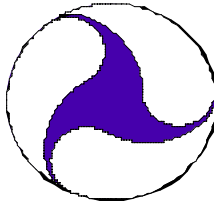
Module Objectives

- ◆ **Illustrate how integrated deployment lays the foundation for information sharing**
- ◆ **Describe how integrated ITS can be deployed within current transportation institutions**
- ◆ **Illustrate how the National ITS Architecture can help**

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Delivery:
- Explain
  - "Bullet" points listed on this slide provide the framework for subsequent presentation/discussion within this module
  - Description/explanation for each "bullet" will follow shortly
  - Need to think "outside-the-box" when considering regional ITS integration
  - Need to identify all of the ways in which regional ITS integration can be realized
- Instructor facilitates discussion (if any)

Output:
- N/A

Notes:
- Do not "dawdle" on this slide → move on!!

Where We Are Now...

- ◆ **Module 1**
  - ✦ **Mapped issues/problem to potential ITS infrastructure component "solutions"**
  - ✦ **ITS solutions often involve exchanging information with multiple ITS components**

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Delivery:
- **STATE:**
  - "Look-at Flip-chart **FC-1A-3** → "Problems/Site Conditions-to-ITS Solutions"
  - "Remember how we showed that a transportation challenge can have more than one ITS solution…How?"
  - "…By having integration between ITS projects accomplished through information sharing and telecommunications"
- Instructor facilitates discussion (if any)

Output:
- N/A

Notes:
- N/A

Where We Are Now. . .

◆ **Module 2**

   ✦ **Broke down ITS infrastructure components into possible ITS projects**

   ✦ **Established ITS project "Lead Agency"**

   ✦ **Identified other ITS stakeholders**

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Delivery:

- **STATE:**
  - "Look-at Flip-chart **FC-2A-3** → "Lead Agencies" in your region"
  - "Remember it takes agencies and people who are interested to move ITS projects forward"
  - "Does your agency "fit-the-bill"? Are you one of these people?"
- Reinforce the notion that agencies need to talk to one another (especially with those other agencies that "own" particular ITS projects that information is desired to/from in order to enhance their agency's operations)

Output:

- N/A

Notes:

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Regional Integration

- ◆ **Ground zero—develop trust and relationships**
- ◆ **1st generation of integration—information sharing**
- ◆ **2nd generation of integration—responsibility sharing**

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Delivery:
- Explain
  - That these "3-generations" reflect a simplistic view-of-the-world
  - That most (if not all) types of sharing can be categorized this way → just to varying degrees within each
  - Regional integration is the ultimate goal --> these are steps on the way there
- **ASK:**
  - "Are there any other "generations" that you can think of…?"
- Instructor facilitates discussion (if any)

Output:
- N/A

Notes:
- Don't get "bogged-down" with the "generation" question

Information Sharing

- **Focus on information sharing between agencies**
- **Examples**
  - **Share/distribute CCTV video images**
  - **Pass-along/share incident locations**
  - **Provide transit routes/schedules/status**
  - **Provide real-time network status**

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Delivery:

- Explain
  - Information sharing is usually a low-risk initiative with a high return-on-investment
  - Here are a few examples…
  - *CCTV*
    - *Situation → EMS views CCTV image and can discern that an automobile is on fire*
    - *Benefits → Appropriate response in a timely manner, potential life-saving situation, reduced response time, etc.*
  - *Incident Locations*
    - *Situation → State DOT Courtesy Patrol drives by an accident and alerts the State Patrol*
    - *Benefits → Reduced response time, timely dispatch of appropriate response, saved man-power, etc.*
  - *Transit*
    - *Situation → Transit agency provides vehicle location/status information to traveler information system*
    - *Benefits → Customers save time by knowing exactly "when" the bus will show, transit agency can better manage bus fleet*
  - *Network Status*
    - *Situation → State DOT provides status of network to information service provider (say radio/television stations).*

- - *Benefits → Travelers have a better chance of selecting best route to destination*
  - **ASK:**
    - "Can you think of any other examples of information sharing that are currently occurring back in your region?"
    - *Other examples*
      - *Monitoring of traffic signal plans*
      - *Monitoring of freeway traffic conditions*
- Instructor facilitates discussion (if any)

Output:
- N/A

Notes:
-

M3A.7: Responsibility Sharing   **(5 min)**

Responsibility Sharing

◆ **Define agreements to identify implementation/ operating responsibilities**

◆ **Includes information sharing**

Delivery:
- Explain
  - Responsibility, or control, sharing can be somewhat controversial → because it may mean that another agency is allowed to "operate" your systems
  - Therefore, extremely important that you "get-everything-in-writing"
    - Pre-defined policies and standard-operating-procedures (SOP)
    - Memoranda's-of-Understanding (MOUs)
  - Or have a very good understanding and working relationship
  - Can have an extremely high return-on-investment
- **ASK:**
  - "Can you think of any examples of control sharing that are currently occurring back in your region?"
  - *Examples*
  - *Sharing 24-hours-a-day/7-days-a-week operations (24/7 ops Responsibility*
  - *Traffic signal and ramp metering coordination*
  - *CCTV images/camera control*
  - *Traveler information messages*
  - *Transit priority*
  - *Emergency vehicle dispatch*
- Instructor facilitates discussion (if any)

Output:

- N/A

Notes:

-

M3A.8: What Information Needs to Be Shared   **(5 min)**

What Information Needs to Be Shared

◆ **List the information that you currently share between your agency and other regional agencies**

◆ **How does this information help your agency to do its job better?**

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Delivery:

- **ASK:**
  - "List the information that you currently share between your agency and other regional agencies"
- Tell the class that an example of how to fill-in the worksheet is on the next slide...
- Participants write responses down on an individual worksheet **(WS-3A-1)**

WS-3A-1

Your Agency	Information Currently Shared	Flow	Other Agency
1			
2			
3			
4			
5 ↓			

- Ask a few participants to discuss their worksheets
- Instructor facilitates discussion (if any)

Output:

- List of information that participants' currently share between their agency and other regional agencies **(WS-3A-1)**

Notes:

- Watch the time → keep things moving!

- **M3A.9: Participant Worksheet (Example)**   **(2 min)**

Participant Worksheet (Example)

Your Agency	Information Currently Shared	Information Flow	Other Agency
State DOT	CCTV video image	1-way (☆)	Transit
State DOT	Bus route/schedule	1-way (❿)	Transit
State DOT	Ramp metering "priority"	2-way (∞)	Transit
State DOT	Network status	2-way (∞)	Local Agency

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Delivery:

- Walk your way through the example in order to assist participants in filling-in their worksheet **(WS-3A-1)**

Output:

- N/A

Notes:

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M3A10: What Information to Share   **(5 min)**

What Information to Share?

- ◆ **List the information your agency would like from other regional agencies**
- ◆ **How will this information help your agency to do its job better?**

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Delivery:
- **ASK:**
  - "List the information your agency would like from other regional agencies"
- Fill-in this worksheet just like you did the other one…
- Participants write responses down on an individual worksheet **(WS-3A-2)**

WS-3A-2

Your Agency	Information You Would Like	Flow	Other Agency
1			
2			
3			
4			
5 ↓			

- Ask a few participants to discuss their worksheet
- Instructor facilitates discussion (if any)

Output:
- List of information that participants' agencies would like from other regional agencies **(WS-3A-2)**

Notes:
- Watch the time → keep things moving!!

National ITS Architecture

- ◆ **Provides some tools to assist ---- a road map**
- ◆ **Information sharing requires compatible ITS deployments**
- ◆ **National ITS Architecture provides the framework for integrating basic infrastructure**
- ◆ **Includes technical and institutional elements**

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Delivery:

- Explain
    - Conceptual view of the National ITS Architecture
        - *A unifying framework that enables ITS infrastructure components to share information and function as an intermodal transportation system*
    - National ITS Architecture provides a tool to assist in this information sharing effort
    - It provides data flow diagrams (DFDs) between all of its subsystems → representing both "bare minimum" and "full coverage" flows
    - You (the participant) probably struggled a bit when you filled out the previous two (2) "information sharing" worksheets → A lot of this groundwork has already been done for you in the form of the National ITS Architecture's DFDs
- Instructor facilitates discussion

Output:

- N/A

Notes:

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M3A.12: Steps Toward Implementing a Project   (2 min)

Steps Toward Implementing a Project

- ◆ **Convene the requisite subgroup of regional stakeholders**
- ◆ **Define system operational objectives and functional requirements**
- ◆ **At an institutional level, sketch out:**
  - ✦ **Information needs, sources, and flows**
  - ✦ **Facilities and communications links**
  - ✦ **A general concept-of-operations**

Delivery:

- Explain
  - Getting the right group of people together at the bargaining table is the critical "1st step" in moving a project forward to actual real-world deployment and integration
  - Functional requirements are the foundation for system performance, agency operations, and stakeholder expectations
  - Need to figure out what resources are internal to your agency (e.g, information, equipment, coverage zones, etc.) that can be used to support operations
  - Then you need to figure out what else you need from other agencies...
  - Think about sharing facilities and communications --> these "big ticket" items are multi-purpose, have capacity to be used by many, and offer various opportunities for partnering and cost-sharing
  - A concept-of-operations provides the starting point from which functional requirements are developed
    - First on an agency-by-agency basis
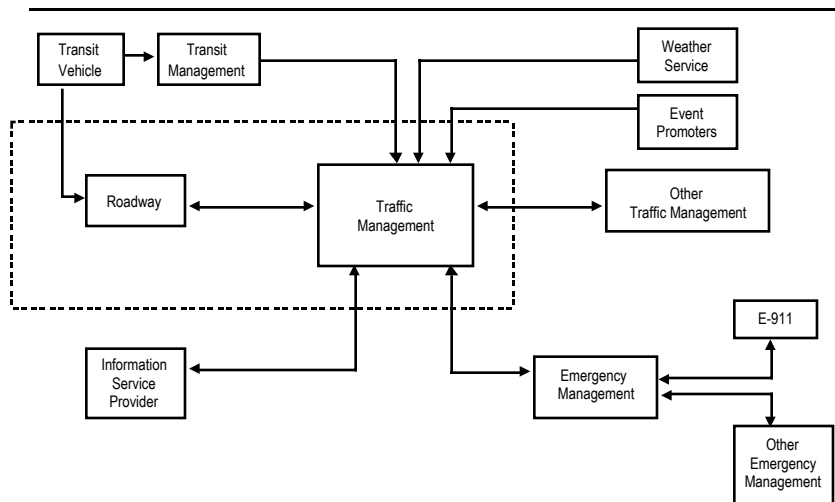   - Then from a regional perspective

Output:

- N/A

Notes:

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M3A.13 -- Incident Management in an Integrated Environment (3 min)

Incident Management Information Needs/Flow

Delivery:

- Explain
    - Graphic illustrates simplistic relationships between National ITS Architecture subsystems as it pertains to Incident Management
    - Graphic depicts "high-level" information flows between those National ITS Architecture subsystems that should be integrated
    - That we are going to be focusing on National ITS Architecture subsystem integration/information sharing from an Incident Management perspective
- From the graphic, there are seven (7) primary National ITS Architecture subsystems that Traffic Signal Control should be integrated (should share information with)
- Traffic Management and Roadway
    - *"Dotted" box encloses what most of us expect/think that FMS and/or TSC encompasses -->however, it can be so much more*
    - *Situation --> Accident detected on the freeway*
    - *Observation --> Can roadway operations be adjusted to the accident in a timely manner...*
    - *Information needed (possible) --> location, duration, severity, type, # of lanes closed, etc.*
- Each of the remaining six (6) interrelationships will be individually depicted on a subsequent slide
- Other boxes are possible sources of useful information that enable anyone to do their job better

- Plan for the future by making provision for additional connections to other subsystems and agencies
- **ASK:**
  - "Do you see any relationships that are missing?
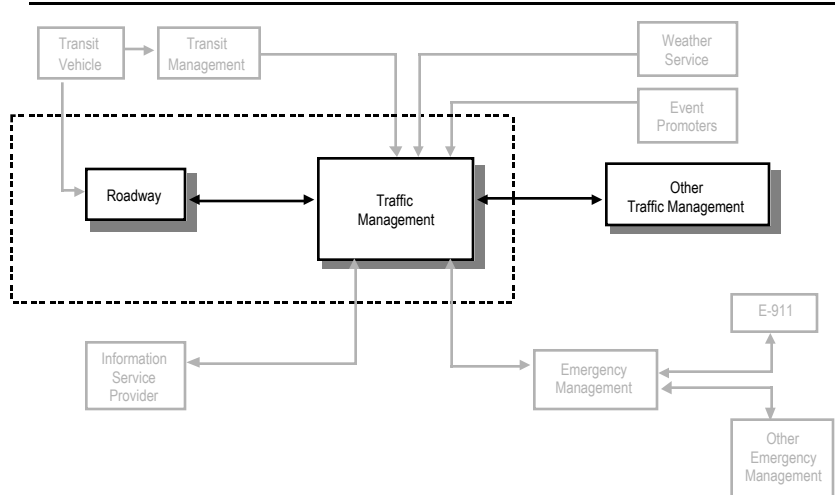- Instructor facilitates discussion

Output:
- N/A

Notes:
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M3A.14: Incident Management (to Other Traffic Management) (3 min)

Incident Management and Other Traffic Management

Delivery:
- Other Traffic Management
  - *Coordination between adjacent agencies'/jurisdictions' traffic operations and management centers/systems is paramount to success*
  - *Information and responsibility sharing can both be involved*
  - *Situation --> HazMat spill closes the freeway for three (3) hours*
  - *Observation --> Is it possible to let travelers know in advance that the freeway is closed so that they can make other plans...*
  - *Strategies include coordinated ramp metering rates with arterial signal control, pre-planned incident diversion routes, VMS, HAR, etc.*
  - *Information needed (possible) --> location, duration, severity, type, # of lanes closed, personnel on-the-scene, etc.*
- Instructor facilitates discussion
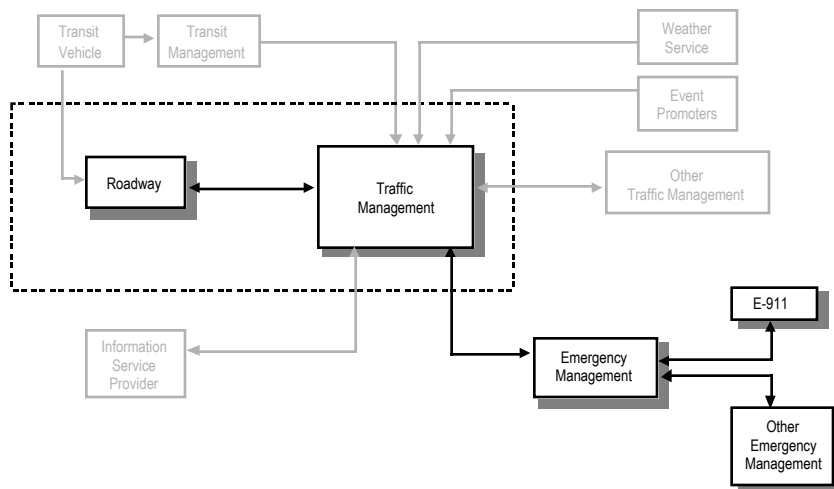
Output:
- N/A

Notes:
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M3A.15: Incident Management (to Emergency Management) (3 min)

Incident Management and Emergency Management

Delivery:

- Emergency Management
  - *Coordination with EMS agencies and vehicles is critical to improving incident response times and providing the most appropriate response*
  - *Coordination between adjacent agencies'/jurisdictions' EMS dispatch centers/systems is paramount to success*
  - *Situation --> Driver with a cellular phone wants to report an accident*
  - *Observation --> Can information from this caller be used to help incident response*
  - *Situation --> A school bus has flipped over leaving many children injured*
  - *Observation --> Is it possible to contact as many ambulances/EMS vehicles as possible in a short time to respond to this tragedy...*
  - *Information needed (possible) --> location, severity, type, # of people injured/involved, personnel on-the-scene, etc.*
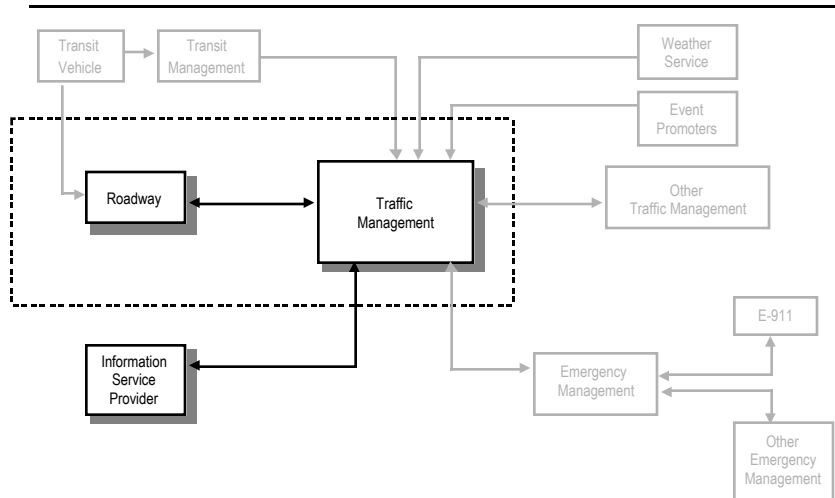- Instructor facilitates discussion

Output:

- N/A

Notes:

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M3A.16: Incident Management (to Information Service Provider)(3 min)

Incident Management and Information Service Provider

Transit Vehicle → Transit Management

Weather Service

Event Promoters

Roadway → Traffic Management

Other Traffic Management

E-911

Information Service Provider → Traffic Management

Emergency Management

Other Emergency Management

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Delivery:

- Information Service Providers
  - *Traffic Management and Traveler Information Systems already have a unique and historic relationship due to current methods/means of disseminating traffic/traveler information to the motoring public (e.g., VMS, HAR, etc.)*
  - *Traffic Management and Information Service Providers also have an established relationship in many regions through the use of commercial radio broadcast, cable TV transmissions, etc --> further strengthening of these bonds is being pursued in the form of various public/private partnering arrangements and value-added services*
  - *Situation --> A three (3) car accident has just happened on the freeway*
  - *Observation --> Can a commercial broadcast service find out this information through its own resources...*
  - *Observation --> Does the commercial broadcast service need to work with the public sector in order to distribute traveler information...*
  - *Information needed (possible) --> location, duration, severity, type, # of lanes closed, personnel on-the-scene, possible diversion routes, etc.*
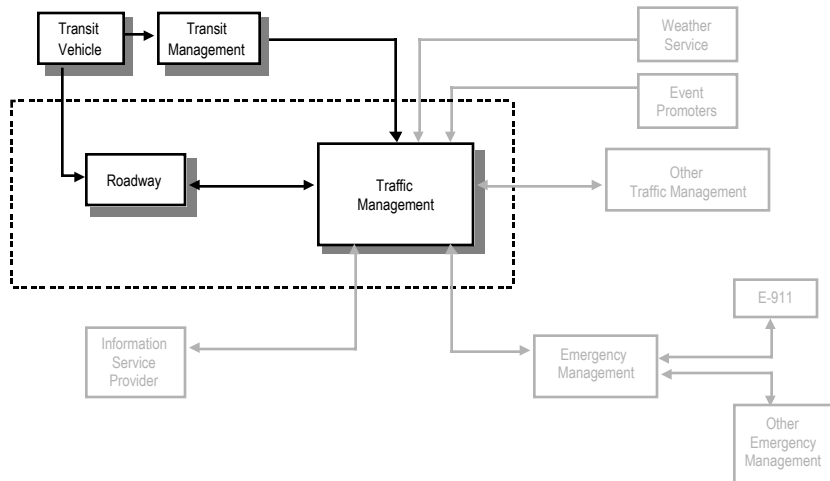- Instructor facilitates discussion

Output:

- N/A

M3A.17: Incident Management (to Transit Management) (3 min)

Incident Management and Transit Management)

Delivery:

- Transit Management
    - *Transit Management is coordinated with Incident Management via the Roadway and Traffic Management subsystems --> this relationship exists within the National ITS Architecture but this graphical depiction does not*
    - *Transit Management needs to be aware of Incident Management activities in order to re-route or re-schedule buses as necessary*
    - *Situation --> Robbery and shooting has closed a number of major arterials within the region*
    - *Observation --> Is it possible for the local transit agencies to re-route or re-schedule their buses around this area while minimizing the disruption in service to its customers...*
    - *Information needed (possible) --> location, duration, # of lanes closed, possible diversion routes, etc.*
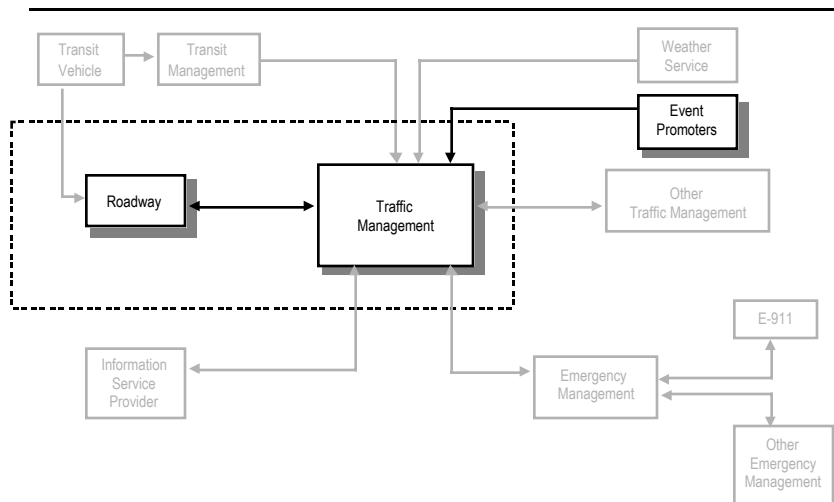- Instructor facilitates discussion

Output:

- N/A

Notes:

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M3A.18: Incident Management (to Event Promoters)   (3 min)

Incident Management and Event Promoters

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Delivery:

- Event Promoters
  - *Special event management at major activity centers is crucial to minimizing the impact on "normal" traffic conditions/operations*
  - *Advance notice of such events allows all responsible agencies/jurisdictions to prepare their response in advance of the situation*
  - *Situation --> Super Bowl is being played at the stadium*
  - *Observation --> Can we alert our staff to be prepared for a potentially large number of incidents...*
  - *Observation --> Can we alert our staff to prepare their response in advance of the situation….*
  - *Information needed (possible) --> location, duration, severity, type, # of lanes closed, personnel on-the-scene, planned re-routing, etc.*
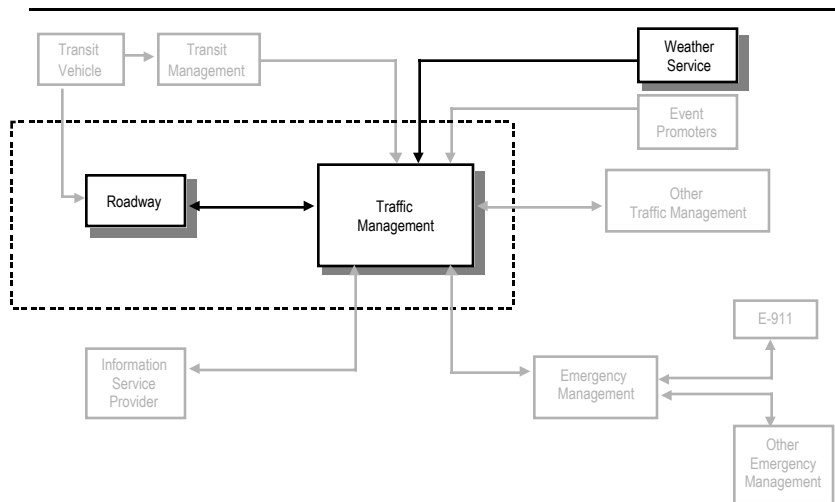- Instructor facilitates discussion

Output:

- N/A

Notes:

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M3A.19: Incident Management (to Weather Service)   (3 min)

Incident Management and Weather Service

Delivery:

- Weather Service
    - *Incident Management activities can be positively impacted if the involved agencies can receive reliable, accurate, and timely information from a Weather Service system/bureau*
    - *Advance notice of weather conditions allows all responsible agencies/jurisdictions to prepare their response in advance of the situation*
    - *Situation --> Big winter storm is approaching the region*
    - *Observation --> Can we alert our staff to be prepared for a potentially large number of incidents...*
    - *Observation --> Can we alert our staff to prepare their response in advance of the situation….*
    - *Information needed (possible) --> location, duration, severity, type, # of lanes closed, personnel on-the-scene, planned re-routing, maintenance scheduling/routing, etc.*
- Instructor facilitates discussion

Output:

- N/A

Notes:

-

Review

◆ **National ITS Architecture helps**

◆ **Provides roadmap**

◆ **Integration is the key**

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Delivery:

- Information flows depicted within the graphical examples are representative of flows within the National ITS Architecture
  - Therefore, it has already established the framework/groundwork for you
  - However, you still need to "fill-in" the particular information flows needed and desired by your agency
- Information sharing between agencies and integrated operations between subsystems help agencies to do their jobs better
- Instructor facilitates discussion

Output:

- N/A

Notes:

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